INDIAN HERITAGE KNOWLEDGEBASE

As Veda-s happen to be the best and oldest available evidence of ancient Indian literary advancement and cultural heritage, their preservation is our foremost duty. Besides, the word/sentence structure, the euphonic combination processes, the accent-related meaning variations, the diverse ways of word formations and usage, the etymological and exegetical aspects, recitational and tonal aspects etc. have profound influence on and can contribute to our knowledge and study of Indology, Linguistics (graphical, spoken and conceptual forms), Life Sciences, Musicology, Medicine etc. Thus preservation, study/research and Propagation for posterity are the guiding objectives of our current efforts.

INTRODUCTION - Knowledge Representation Issues

Modern Knowledge-Based-Computer Systems employ Predicate Logic (*’if-then-else’* form of rules), Semantic Networks and Conceptual Dependency schemes to represent ’World Knowledge’ in Computers. Hudli and Viswanathan [1] have shown the correspondence of these three methods to the "**Śābda-bodha"** concept in the three branches of Śāstraic (Sanskrit) literature, viz. Nyāya, Vyākaraṇa and Mīmāṃsā. The self-inference generating characteristic of Sanskrit grammar (of Pāṇini) has been brought forth by Rick Briggs [2]. Thus, for a variety of applications like NLP (Natural Language Processing), MT (Machine Translation), CAL (Computer-Aided Learning) and Expert Systems, the Śāstraic concepts could be adopted. [References : 1. Analysis of sentences in Sanskrit and Knowledge Representation Techniques by **HR Vishwasa, RV Hudli and T Vishwanathan,** Papers presented at KRIS-86, Bangalore. 2. Knowledge Representation in Sanskrit and AI by **Rick Briggs**, AI Magazine, Spring, 1985.]

The tenets of the Śāstras throw sufficient light for realising a knowledge representation based on these. We could benefit from the various methodologies and principles evolved therein for analysis of verbal communication through Sanskrit language, abstracted suitably. Three distinct constituents of a knowledge representation scheme could be a Lexicon, a knowledge base and programs for analysis of the knowledge base.

THE KNOWLEDGE BASE - Classification

The Knowledge Base could be the Sūtras of all the branches of learning in Śāstraic literature. Three levels of learning are identified, viz. Upāsanā - Experience (consciousness), Jñāna - Knowledge (pure Science) and Kalā - Skill (applied science). Accordingly, Śāstras dealing with these are called Parā Vidyā, Aparā Vidyā and Kalā. Parā Vidyā or Brahma Vidyā, numbering 32 and Nyāsa Vidyā, deals with meditation and self-realisation on the basis of Upaniṣad portion of Vedas (scriptural texts). These are elaborated in Brahma Sūtras of sage Vyāsa.

The **Śāstra**s have classified all knowledge (Aparā Vidyā-s) into **FOURTEEN** subjects of study or **Vidyāsthāna**s which include the four Vedas (scriptures), six Vedic auxiliary sciences (Vedāṅgas) and four supplementary subjects (Upāṅgas). The aṅgas and upāṅgas of the Vedas are to be used for the proper interpretation of the Vedic texts which alone are the sole repository of all knowledge leading to various attainments (material and spiritual).

The four **Upa-Vedas** are Ayurveda, DhanurVeda, GandharvaVeda and ArthaSastra/ Sthapatya.

These also have four phases each, viz, Learning, Reflecting, Practice and Propagation.

The applied Sciences, numbering 64, cover the various fine arts and crafts, classical literature, medicine, engineering, technology, sculpture, architecture, aesthetics, gemology, metallurgy, meteorology etc. {list in the end of this document.}

Aparā Vidyā (Śāstra-s) - description

The **Vedas** are named **ṚgVeda** (in the form of laudatory hymns of deities etc.), **Yajur Veda** (describing sacrificial/ritualistic aspect of the use of Vedic Hymns), **Sāma Veda** (musical recitation of the Hymns in Sacrifices etc.) and **Atharva Veda** (propitiatory and mundane aspects like mental and physical health, warfare, magic etc).

The six **Vedāṅga**s are **Śikṣā** (Science of Phonetics of syllables and pronunciation) - Nose, **Vyākaraṇa** (Grammar or the Science of words) - Mouth, **Chandas** (Science of Prosody/Metrics) - Feet, **Nirukta** (Science of Etymology or literals and their Exegesis) - Ears, **Jyautiṣa** (Science of Astronomy) - Eyes and **Kalpa (**Ritual Directory specifying the practical use of Vedic texts in sacrifices) - Hands.

The **Upāṅga**s are **Mīmāṃsā** (Science of Epistemology and Discourse), **Nyāya** (Logic and Syllogism or Science of Sentences), **Purāṇa** (Epics which illustrate and amplify Vedic Thoughts) and **Dharma Śāstra** (Moral Code of Rectitude or Behaviour).

It is clear from the above that the entire gamut of knowledge-related issues owe their origin to Vedic texts alone in the Indian Civilisation, Culture and Philosophy which collectively is our great Heritage.

Salient Features/Details - Vedic texts

Vedas are four in number, usually likened to a tree with four major trunks and branches (Śākhās) further in each trunk. Among these, Ṛg Veda had 27 Śākhās, Yajur Veda initially divided into two major sub-types as Śukla (white) and Kṛṣṇa (black) had 15 and 86 Śākhās respectively, Sāma Veda had 1000 Śākhās and Atharva Veda 9 Śākhās.

*Currently, only two Śākhās of Ṛg Veda (there too, one of them is not very significantly different from the popular one), two in Śukla Yajur Veda, four in Kṛṣṇa Yajur Veda, **three in Sāma Veda (of which one has followers in single digits), and two in Atharva Veda (here also the number of reciters is in single digits**) are surviving in tradition. The various Vedas and their Śākhās being recited by various schools depend also upon geographical locations with the highest concentration in South India (Tamil nadu, Andhra Pradesh, Karnataka, Maharashtra and Kerala) and more sparse distribution elsewhere.*

In every Vedic Śākhā, there are four types of texts called the **Saṃhitā** (to which portion only Pada-pāṭha, Vikṛtis and Varṇa-krama apply), **Brāhmaṇa, Āraṇyaka** and **Upaniṣad**s. There are special Vedic grammar rules for each Śākhā called 'Prātiśākhya' and phonetic rules known as 'Śikṣā'. There are also other 'Lakṣaṇa Grantha's which deal with accent combinations (Sandhi), Vikṛti formation etc. for a particular Śākhā.

Text content

In terms of quantity, any Vedic Śākhā would typically contain about one lakh words of five syllables per word on an average, about 1.5 lakh words of Brāhmaṇa, Āraṇyaka and Upaniṣad, similarly. With the Pada-pāṭha and various auxiliary works like Prātiśākhya, Śikṣā etc. amounting to another 1.5 lakh words, it would come to approximately 7.5 MB of text per Śākhā. For the 13 Śākhās now available as aforesaid, the total Vedic texts would amount to 98.5 MB of info. If vikṛtis are also considered, this figure would grow to 20 MB per Śākhā and Varṇa-krama 1.25 MB per Śākhā. (276.5 MB additionally).

Vedic word analysis

There are twenty-six parameters for each Vedic syllabic definition. Given below is the typical Vedic character set with these details. As an illustration, for the vowel 'a', consonant 'ka', and the accent 'udātta'. The recess between different components of a character, between characters of a word etc., are also explicitly mentioned. This is the "complete" description of every unit of a Vedic syllable and happens to be a definition or specification for Vedic texts, where all aspects like literal, phonetic, grammatical, physiological, conceptual, spiritual and philosophical are covered and this is the finest text-form safeguarding mechanism devised in the oral tradition. We have now created a computational database of these intricate details for the normal and special cases of Taittirīya śākhā, to begin with. This is not much different for other śākhās as well.

Vedāṅgas

1. **Śikṣā** of **Pāṇini, Bhāradvāja, Vyāsa, Pāri, Kauṇḍinya** etc. dealing with phonetics for Vedic intonation and accents, pronunciation and certain special features of Vedic grammar etc, in verse form;

The Ancient Indian Science of Phonetics (**śikṣā)** is first of the six auxiliary branches of study (vedāṅga - śikṣā is likened to the nose of vedas) for the proper interpretation and understanding of vedas. Many sages like *pāṇini, vyāsa, bhāradvāja, yājñavalkya, nārada, āpiśali, pāri* etc. have described Phonetics, and as such, different śikṣā works are attributed to them. Some of these are common for all vedas while some are specific to certain veda/sākhā. Here, we shall concern with *pāṇinīya śikṣā* for further discussions. This work is in the form of sixty verses and references to them here would be by their verse numbers. According to pāṇini, the purpose of the Science is to clarify the proper pronunciation of utterances (vācaḥ uccāraṇavidhi vyaktīkaraṇam - pā. śi. 2).

Contents of śikṣā śāstra

As per *taittirīyāraṇyaka*, śikṣā deals with the pronunciation of the character set of Sanskrit language at varṇa, svara, mātrā, bala, sāma and santāna levels. What these signify is further explained.

varṇaḥ : literals (vowels, consonants etc.) beginning with a. These total 63 or 64 (pā.śi. 3) twenty-one *svara*s (Vowels), twenty-five sparśas (stops), eight beginning with *ya* (four semi-vowels and four fricatives), four yamas (doubled characters under specified circumstances - explained in prātiśākhyas), anusvāra, visarga, jihvāmūlīya, upadhmānīya, ḷakāra and ḻkāra pluta (pā.śi. 4-5).
svaraḥ : accent or intonation of three basic types, viz., udātta (acute), anudātta (grave) and svarita (circumflex).
mātrā : duration of utterance - hrasva (short), dīrgha (long) and pluta (prolated) for vowels.

balam : covers places of origin (eight) of sound and effort of articulation (internal and external).
sāma : balanced way of pronunciation (pā.śi. 31) having acceptable qualities (pā.śi. 33, 36-37) and without defects (pā.śi. 32, 34-35).
santānaḥ : Euphonic combinations (including their absence at specified situations).

The efficacy of these being in chanting, we might use multi-media approach to properly preserve and study these texts. As the importance of such an effort which would serve the cause of the very foundation of our Heritage does not need any over-emphasis, we should direct all available state-of-the-art high-tech devices towards this task, which is also technologically challenging for analysis etc. Today, there may not be proper awareness even, as to handling many of these issues like study of accent-related meaning changes etc., which hold the key to understanding spoken languages.

2. **Vyākaraṇa - Aṣṭādhyāyī** of sage **Pāṇini**, a Vedāṅga (likened to the `mukha` (mouth) of Veda Puruṣa), contains well-stuctured grammar rules for sanskrit language consisting of about 4000 sutras in 8 chapters and 32 quarters (in all, having only about 60,000 characters!);

Pāṇini's Aṣṭādhyāyī deals with word-level aspects like rules for formation of valid word-forms, description of their structure and rules for their usage. This covers simple, compound and concatenated word-formation of various types, parts of speech like nouns, verbs, attributives, relational functors, governance clauses etc. in scriptural and literary language, parameters like origin of sound, internal and external effort, phonetic classification, accents etc. at substrate and affix levels for all words. The substrate could be nominal stem or base for nouns and verbal roots for verbs. Affixes include prefixes (like upasarga for verbs), in-fixes (certain taddhitas for nouns, conjugational ones in certain classes of verbs etc.) and suffixes (like Sup for nouns, 'Tiṅ' etc. for verbs and so on). The process of derivation of valid word-forms becomes thus clearly defined.

3. **Chandas Sūtras** of sage **Piṅgaḷa**, dealing with Prosody, metrics and other aspects of prose and poetry applicable to Vedic as well as classical literature containing 286 sutras in 18 chapters;

4. **Nirukta** of sage **Yāska**, a Vedāṅga, likened to the nose of Veda Puruṣa, dealing with epistemological, exegetical, phonological, morphological and semantic aspects of Vedic literature with a dictionary of 1773 vedic words, fully derived and explained with examples, giving out criteria for such an analysis, containing 12 chapters, 49 quarters and 3 major Sections, in prose order;

Yāska's **Nighaṇṭu** and **Nirukta** is the earliest available technical treatise ever in the history of human civilisation after Vedic texts and is hailed as the best treatment of linguistic and exegetic aspects pertaining to accented, phonetic forms of Vedic literature. Its study, owing to the rigorous efforts involved, is almost become extinct, except for a very few traditional scholars who are past their prime. Even publications of research in this important field have been very rare, only a couple of them in this century.

The Computational Study of Nirukta will benefit students of Sanskrit Etymology in particular and Linguists in general, regarding various exegetic aspects of systematic, phonetic languages like Sanskrit from the Vedic texts to current colloquial speech.

5. **(Vedāṅga) Jyautiṣa** of sage **Lagadha**, describing astronomical aspects for Vedic rituals and sacrifices, in verse form (2 - Ṛk, Yajus - recensions with 35 and 44 verses) and

6. **Kalpa Sūtras**, typically of sage **Āpastamba**, (Āśvalāyana, Bodhāyana...) divided into 6 portions -
i) Paribhāṣā Sūtra-s being the metalanguage and conventions used in Kalpa Sūtra-s in 160 sutras in 4 quarters of 1 chapter,
ii) Dharma Sūtra-s dealing with moral rectitude, conduct and character, physical, spiritual and ritualistic aspects of human behaviour at individual and society levels, contained in 1362 Sūtra-s of 2 chapters, 11 sections and 29 sub-sections,
iii) Gṛhya Sūtra-s dealing with domestic Vedic ritualry, consisting of 405 Sūtra-s, 8 sections and 23 sub-sections,
iv) Pitṛmedha Sūtra-s describing obsequial ritualry comprising 306 Sūtra-s in 2 chapters,
v) Śulba Sūtra-s describing constructional and architectural aspects of sacrificial altars etc. involving **Vedic Mathematical principles**, contained in about 300 Sūtra-s, 6 sections and 21 sub-sections, and
vi) Śrauta Sūtra-s describing the various sacrifices mentioned in Vedas, contained in over 10000 Sūtra-s in 23 chapters and scores of sections and sub-sections;

Upāṅga-s

1. (Pūrva) **Mīmāṃsā Sūtra-s** of sage **Jaimini**, an Upāṅga, containing 2617 Sūtra-s in 12 chapters, 60 quarters, 907 topics each giving out a maxim/rule for interpretation of Vedic texts;

The **Mīmāṃsā** Śāstra is primarily meant to devise methods for interpretation of Vedic texts, including Upanishads, and does so mainly at discourse level. Here, criteria for determination of discourse import, coherence, conflict resolution, priorities and relative strengths of various instruments of knowledge etc. are described. Theories of the process of cohering of word-meanings at sentence level are a hall-mark of this shastra, which has applications in all other shastras as well. Contextual aspects are dealt with in good detail and methodologies evolved by generalisation, to cater to different kinds of conflicting statements in a discourse.

Brahma Sūtra-s of sage **Vyāsa**, an Upāṅga, having 545 Sūtra-s in 4 chapters, 16 quarters and 156 topics, devising methodology for analysing Upaniṣadic texts. This is also called as Uttara Mīmāṃsa and is counted as one branch of study alongwith (Pūrva) Mīmāṃsā.

2. **Nyāya Sūtra-s** of sage **Gautama**, an Upāṅga, dealing with sensory perception, Inference, Analogy, Verbal Testimony, various aspects of polemics, debate, syllogism, fallacies etc. in all describing 16 entities 'worth knowing about for realising the ultimate', in 528 Sūtra-s covered in 5 chapters, 10 Āhnika-s, and under 84 Prakaraṇa-s (major topics);

The Nyāya Śāstra deals with Ontological classification of things and proceeds to enumerate, define and verify their essential and typical characteristics. Instruments and objects of knowledge are dealt with in detail. The process of 'human understanding' is described and theories of valid knowledge, error, word-meaning relations, cognition, validity/fallibility etc. are postulated. The linguistic, psychological, ontological, logical and philosophical issues are elaborated besides covering the inference in great detail. Aspects of sentence-hood with necessary criteria like proximity, expectancy and compatibility are evolved and sentential

import extraction explained. Thus, this shastra could be thought of as dealing at sentence-level processes.

3. Purāṇa – Puranas are authored by Maharshi Badarayana (Veda Vyasa). There are 18 Mahapuranas and 18 Upapuranas as well. These serve the purpose of elucidating the Vedic principles and concepts (Upabrmhana). The Mahapuranas are - Brahma, Padma, Vişnu, Vāyu, Bhāgavata, Nāradiya, Mārkandeya, Agni, Bhavisya, Brahmavaivarta, Linga, Varāha, Skanda, Vāmana, Kūrma, Matsya, Garuda, and Brahmānda Purana. The 18 Upapuraṇas are - Sanatkumāra, Narasimha, Brhannāradīya, Śiva, Durvāsa, Kāpila, Mānava, Ausanasa, Vāruna, Kālikā, Māhesvara, Sāmba, Saura, Parāsara, Devibhagavata, Aditya, Vāsişṭha and Vişnudharmottara. The two renowned Itihasa i.e. Srimadramayana and Mahabharata are also classified under this Upanga/Vidyasthana.

4. **Dharmaśāstra** – This Upanga includes various Smritis of Maharshis and some Nibandha granthas, helpful in guiding the performance of various Vaidika Karmanusthana. The popular Smritis are Manu, Atri, Vişnu, Hārīta, Yājnavalkya, Usanā, Angiras, Yama, Apastamba, Samvarta, Kātyāyana, Brhaspati, Parāsara, Vyāsa, Sankha-Likhita, Dakşa, Gautama, Sātātapa, Vasişṭha etc., Nibandhas like Smrtiratnakara, Saccaritrasudhanidhi, Smrticandrika, Smrtimuktaphala, Viramitrodaya, Vivadaratnakara, Dayabhaga, Nirnayasindhu, Dharmasindhu etc.

Upaveda -
1. Āyurveda - Caraka, Suśruta Saṃhitā, Mādhava Nidāna,
2. Gāndharva Veda - Bharata Nāṭya Śāstra, Saṅgīta Ratnākara,
3. Sthāpatya - Vāstu Śāstra, Śilpa Śāstra,
4. Dhanurveda - Samarāṅgaṇa Sūtradhāra (Bhoja),

• Arthaśāstra - Kauṭilīya, Kāmandaka Nīti Sāra, Pada Sūcī

Compendium of Ancient Indian Intellectual Heritage

content creation - texts to be included - (‘Sakala Śāstra Sūtra Kośa’)

Veda-s - Saṃhitā, Pada-pāṭha, Brāhmaṇa, Āraṇyaka, Upaniṣad, Bhāṣya (Bhaṭṭa Bhāskara, Haradatta, Sāyaṇa, Pratiśākhya, Lakṣaṇa-grantha, Anukramaṇī, Mantra, pada Sūcī for :

1. **Ṛgveda** (+ Khila-pāṭha)
2. *Kṛṣṇa* **Yajurveda** - Taittirīya Śākhā, Maitrāyaṇī Śākhā
   Śukla **Yajurveda** - Kāṇva Śākhā, Mādhyandina Śākhā
3. **Sāmaveda**
4. **Atharvaveda**

Vedāṅga-s -
1. **Śikṣā** - Śikṣāsaṅgraha, Vyākhyāna, Sūtra-pāṭha, Śloka, Pada Sūcī
2. **Vyākaraṇa** - Pāṇini Sūtrapāṭha (Aṣṭādhyāyī), Dhātupāṭha, Gaṇapāṭha, Liṅgānuśāsana, Uṇādi Sūtra, Phiṭ Sūtra, Vārtika, MahāBhāṣya, Kāśikā, Vaiyākaraṇa Siddhānta Kaumudī, Laghu Siddhānta Kaumudī, Pāṇinīya Kośa, Pratyaya Kośa, Sūtra, Pada Sūcī, Mañjūṣā, Vākyapadīya, Mādhavīya Dhātu Vṛtti, Paribhāṣā Saṅgraha
3. **Chandas** - Piṅgaḷa Sūtra, Bhāṣya, Chando Mañjarī, Vṛttaratnākara, Sūtra, Śloka, Pada Sūcī, Chando Lakṣaṇa, Udāharaṇa, Anukramaṇī

4. **Nirukta** - Yāskīya Nirukta, Nighaṇṭu, Bhāṣya, Ākara, Pada Sūcī, Śabdakalpadruma, Amarakośa, Vividha Kośāntara, Kośa Pada, Paryāya Sūcī
5. **Jyautiṣa** - Vedāṅga Jyautiṣa (Ṛk, Yajus), Vārāhamihira Bṛhat Saṃhitā, Bhāskarīya Siddhānta Śiromaṇi, Āryabhaṭṭa Siddhānta, Śloka, Pada Sūcī
6. **Kalpa** - Gṛhya Sūtra, Paribhāṣā Sūtra, Śulba Sūtra, Pitṛmedha Sūtra, Śrauta Sūtra - Āpastamba, Bodhāyana, Āśvalāyana, Sūtra, Pada Sūcī

Upāṅga-s -

1. **Mīmāṃsā** - *Pūrva* **Mīmāṃs***ā* - Jaimini Sūtra, Śābara Bhāṣya, Śloka Vārtika, Bhāṭṭa Dīpikā, Bhāṭṭa Rahasyam, Bṛhatī (Prabhākara), Jaiminīya Nyāyamālā, Nyāyaprakāśa, Mīmāṃsā Paribhāṣā, Śrauta Pada Nirvacana, Śrauta (Prakriyā - Drāviḍamayī).
- *Uttara - Brahma* - **Mīmāṃs***ā* - Bādarāyaṇa Sūtra, Bhāṣya, Īśādi Pañcadaśopaniṣad, Bhāṣya, Gītā, Bhāṣya - Śaṅkara, Rāmānuja (Raṅgarāmānuja), Ānandatīrtha, Śrutaprakāśikā, Viṣayavākyadīpikā, Adhikaraṇaṇa Sārāvaḷī (Savyākhyā), Sūtra, Mantra, Śloka, Pada Sūcī, Prakaraṇa Grantha - Vedānta Paribhāṣā, Nyāya Siddhāñjana, Tattva Muktā Kalāpa, Sarvārtha Siddhi, Śatadūṣaṇī, Yatīndra Mata Dīpikā, Mata Traya Tolana Paṭṭikā
2. **Nyāya** - Gautama Sūtra, Vārtika, Bhāṣya, Nyāya Kusumāñjali, Nyayā Mañjarī, Kārikāvalī, Muktāvalī, Tarka Saṅgraha, Dīpikā, Kaṇāda (Vaiśeṣika) Sūtra, Bhāṣya, Śabda Śakti Prakāśikā, Cintāmaṇi, Dīdhiti, Gādādharī, Nyāya Pariśuddhi, Sūtra, Śloka, Pada Sūcī
3. **Purāṇa** - Bhāgavata, Viṣṇu, **Itihāsa** - Vālmīki Rāmāyaṇa, Mahābhārata, Viṣṇu Sahasra Nāma Bhāṣya - Śaṅkara, Parāśarabhaṭṭa, Mādhva, Śloka, Pada Sūcī
4. **Dharmaśāstra** - Dharma Sūtra - (Āpastamba, Bodhāyana, Āśvalāyana), Manu Smṛti, Bhāṣya, Yājñavalkya Smṛti, Smṛti Ratnākara, Śloka, Pada, Viṣaya Sūcī

Upaveda -

1. **Āyurveda** - Caraka, Suśruta Saṃhitā, Mādhava Nidāna, Śloka, Pada Sūcī
2. **Gāndharva Veda** - Bharata Nāṭya Śāstra, Saṅgīta Ratnākara, Śloka, Pada Sūcī
3. **Sthāpatya** - Vāstu Śāstra, Śilpa Śāstra, Śloka, Pada Sūcī
4. **Dhanurveda** - Samarāṅgaṇa Sūtradhāra (Bhoja), Śloka, Pada Sūcī

- **Arthaśāstra** - Kauṭilīya, Kāmandaka Nīti Sāra, Pada Sūcī
- **Kāma Śāstra** - Vātsyāyāna Sūtra, Bhāṣya, Sūtra, Pada Sūcī

Darśana Śāstra -

1. **Sāṅkhya Sūtra-s** of sage **Kapila**, describing about Nature, its evolutes, theory of cause and effect, metaphysics etc. in 555 Sūtras spread over 6 chapters;

2. **Yoga Sūtra-s** of sage **Patañjali**, dealing with mental states, control of body and mind harmoniously and rigorous means of self- control and realisation, consisting of 195 sutras in 4 quarters of one chapter; [There is another recension having 4 chapters with 4 quarters each, having about 410 sutras.]
3. **Vaiśeṣika Sūtra-s** of sage **Kaṇāda**, also dealing with logical aspects, particularly mataphysical and material properties with reasoning, contained in 369 Sūtra-s in 10 chapters and 20 Āhnika-s;

4, 5, 6 **- Nyaya, Mimamsa, Vedanta – covered under Sastras earlier.**

Cārvāka Darśanam, Pada Sūcī, **Sarvadarśana** Saṅgraha, Para Mata Bhaṅga, Māna Meya Rahasya Śloka Vārtikam, Darśanodaya, Śloka, Pada Sūcī

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Kala-s - List of Fine Arts and Crafts

The applied sciences - numbering 64 - called Kalā are : Itihāsa (history/legion), Āgama (idol worship/rituals), Nyāya (jurisprudence), Kāvya (classical literature), Alaṅkāra (Figurative speech), Nāṭaka (drama), Gāna (music), Kavitva (poetry), Kāmaśāstra (erotica), Dyūta Naipuṇya (skill with dice), Deśa Bhāṣā Jñāna (regional lingusitics), LipiŚarma (lithography), Vācana (oratory), Samastāvadhāna (concentration), Svaraparīkṣā (voice recognition), Śāstraparīkṣā (armoury/warfare), Śakunaparīkṣā (knowledge of omens), Sāmudrikaparīkṣā (physiology), Ratnaparīkṣā (gemology), Svarṇaparīkṣā (goldsmithy), Gajalakṣaṇa (elephant rearing), Aśvalakṣaṇa (horse rearing), Mallavidyā (wrestling), Pākakarma (cookery), Dohaḷa (pottery?), Gandhavāda (odour sense), Dhātuvāda (metallurgy), Khanivāda (minerology), Rasavāda (chemistry), Agnistambha (fire control), Jalastambha (staying afloat), Vāyustambha (wind control), Khaḍgastambha (tightrope trick), Vaśyā (hypnotism), Ākarṣaṇa (seduction), Mohana (mesmerism), Vidveṣaṇa (witchcraft), Uccāṭana (exorcising), Māraṇa (killing), Kālavañcana (time evasion), Vāṇijya (commerce), Paśupālana (animal husbandry, Kṛṣi (agriculture), Samaśarma (balancing), Lāvukayuddha (fencing fight), Mṛgayā (hunting), Putikauśala (dollcraft), Dṛśyasaraṇi (occultism), Dyūtakaraṇi (dice control), Citraloha (alchemy), Pārṣāmṛt (?), Dāru Veṇu Carma Ambarakriyā (wood, bamboo, leather garment work), Caurya (theft), Ouṣadhasiddhi (medicinal powers), Mantrasiddhi (incantation powers), Svaravañcanā (mimicry), Dṛṣṭivañcanā (beguiling), Añjana (anointing), Jalaplavana (swimming), Vāk Siddhi (prophecy), Ghaṭikā Siddhi (prediction), Pādukā Siddhi (cobblery), Indrajāla (jugglery), Mahendra Jāla (magic).

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Current file – Indic Knowledge Landscape
Additional files sent as pdf documents:
1. Paninian grammatical System
2. Overview of Mimamsa Sastra
Besides Powerpoint presentation.
[Total four files covering portion covered till 27.9.2020].